Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (currently amended): A method of measuring at least one optical parameter of ~~a biological sample~~ intact human tissue, wherein said at least one optical parameter is selected from the group consisting of absorption coefficient, scattering coefficient, mean free path, effective attenuation coefficient, and light penetration depth, said method comprising the steps of:

(a) setting the temperature of said ~~biological sample~~ intact human tissue to a first temperature and allowing said ~~biological sample~~ intact human tissue to equilibrate at said first temperature before optical data are collected at said first temperature, said first temperature being within the range of from about 0 °C to about 45 °C;

(b) performing an optical measurement on said ~~biological sample~~ intact human tissue at said first temperature, wherein said optical measurement is a spatially resolved diffuse reflectance measurement;

(c) determining at least one optical parameter of said ~~biological sample~~ intact human tissue at said first temperature, wherein said at least one optical parameter is selected from the group consisting of absorption coefficient, scattering coefficient, mean free path, effective attenuation coefficient, and light penetration depth, said first temperature corresponding to a first depth in said ~~biological sample~~ intact human tissue;

(d) changing said first temperature of said ~~biological sample~~ intact human tissue to at least a second temperature and allowing said ~~biological sample~~ intact human tissue to equilibrate at at least said second temperature before optical data are collected at said at least said second temperature, said at least second temperature being within the range of from about 0 °C to about 45 °C;

(e) performing ~~said~~ an optical measurement on said ~~biological sample~~ intact human tissue at said at least second temperature, wherein said optical measurement is a spatially resolved diffuse reflectance measurement;

(f) determining said at least one optical parameter of said ~~biological sample~~ intact human tissue at at least a second temperature, wherein said at least one optical parameter is selected from the group consisting of absorption coefficient, scattering coefficient, mean free path, effective attenuation coefficient, and light penetration depth, said at least second temperature corresponding to a second depth in said ~~biological sample~~ intact human tissue; and

(g) determining said at least one parameter of said ~~biological sample~~ intact human tissue from the functional relationship of said at least one optical parameter on depth in said ~~biological sample~~ intact human tissue, ~~wherein said biological sample comprises intact human tissue~~, wherein said optical measurements in step (b) and step (e) are carried out by transmitting light into a region of said intact human tissue at a light introduction site and collecting light re-emitted from said region of intact human tissue at a light collection site, wherein the distance between the light introduction site and the light collection site is less than three millimeters.

Claim 2 (currently amended): The method of claim 1, wherein said change in temperature of said ~~biological sample~~ intact human tissue results in a change in penetration depth of light in said ~~biological sample~~ intact human tissue.

Claim 3 (canceled)

Claim 4 (canceled)

Claim 5 (canceled)

Claim 6 (canceled)

Claim 7 (canceled)

Claim 8 (original): The method of claim 1, wherein said first temperature and said at least second temperature are within a range from about 15 °C to about 45 °C.

Claim 9 (original): The method of claim 1, wherein said optical measurement is performed using light at at least one wavelength in a range from about 400 nm to about 2500 nm.

Claim 10 (original): The method of claim 1, wherein said optical measurement is performed using light at at least one wavelength in a range from about 600 nm to about 1300 nm.

Claim 11 (currently amended): The method of claim 1, wherein said at least one parameter of said ~~biological sample~~ intact human tissue is the concentration of an analyte.

Claim 12 (original): The method of claim 11, wherein said analyte is glucose, hemoglobin, or water.

Claim 13 (canceled)

Claim 14 (canceled)

Claim 15 (canceled)

Claim 16 (currently amended): The method of claim 1, wherein said ~~biological sample~~ intact human tissue is intact human skin, esophagus tissue, intestine tissue, or cervical tissue.

Claim 17 (currently amended): The method of claim 1, wherein said at least one parameter of said ~~biological sample~~ intact human tissue is a parameter indicating a disease state.

Claim 18 (original): The method of claim 17, wherein said disease state is diabetic state, vascular disease state, dermatological disease state, or neoplasmic disease state.

Claim 19 (currently amended): A method of measuring at least one optical parameter of ~~a biological sample~~ intact human tissue having a plurality of layers, wherein said at least one optical parameter is selected from the group consisting of absorption coefficient, scattering coefficient, mean free path, effective attenuation coefficient, and light penetration depth, said method comprising the steps of:

(a) setting the temperature of said ~~biological sample~~ intact human tissue to a first temperature and allowing said ~~biological sample~~ intact human tissue to equilibrate at said first temperature before optical data are collected at said first temperature, said first temperature being within the range of from about 0 °C to about 45 °C;

(b) performing an optical measurement on said ~~biological sample~~ intact human tissue at said first temperature, wherein said optical measurement is a spatially resolved diffuse reflectance measurement;

(c) determining at least one optical parameter of a first layer of said ~~biological sample~~ intact human tissue, said first layer being located at a first depth of said ~~biological sample~~ intact human tissue, said first temperature corresponding to a first depth of said ~~biological sample~~ intact human tissue, wherein said at least one optical parameter is selected from the group consisting of absorption coefficient, scattering coefficient, mean free path, effective attenuation coefficient, and light penetration depth;

(d) changing said first temperature of said ~~biological sample~~ intact human tissue to at least a second temperature and allowing said ~~biological sample~~ intact human tissue to equilibrate at said at least second temperature before optical data are collected at said at least second temperature, said at least second temperature being within the range of from about 0 °C to about 45 °C;

(e) performing ~~said~~ an optical measurement on said ~~biological sample~~ intact human tissue at said at least second temperature;

(f) determining said at least one optical parameter at at least a second layer of said ~~biological sample~~ intact human tissue, said at least second layer being

located at at least a second depth of said ~~biological sample~~ intact human tissue, said at least second temperature corresponding to said second depth of said ~~biological sample~~ intact human tissue, wherein said at least one optical parameter is selected from the group consisting of absorption coefficient, scattering coefficient, mean free path, effective attenuation coefficient, and light penetration depth; and

(g) determining said at least one parameter of said ~~biological sample~~ intact human tissue from the functional dependence of said at least one optical parameter on depth in said ~~biological sample~~ intact human tissue, ~~wherein said biological sample comprises intact human tissue~~, wherein said optical measurements in step (b) and step (e) are carried out by transmitting light into a region of said intact human tissue at a light introduction site and collecting light re-emitted from said region of intact human tissue at a light collection site, wherein the distance between the light introduction site and the light collection site is less than three millimeters.

Claim 20 (currently amended): The method of claim 19, wherein said change in temperature of said ~~biological sample~~ intact human tissue results in a change in penetration depth of light in said ~~biological sample~~ intact human tissue.

Claim 21 (canceled)

Claim 22 (canceled)

Claim 23 (canceled)

Claim 24 (canceled)

Claim 25 (canceled)

Claim 26 (previously presented): The method of claim 19, wherein said first temperature and said at least second temperature are within a range from about 10 °C to about 42 °C.

Claim 27 (original): The method of claim 19, wherein said optical measurement is performed using light at at least one wavelength in a range from about 400 nm to about 2500 nm.

Claim 28 (original): The method of claim 19, wherein said optical measurement is performed using light at at least one wavelength in a range from about 600 nm to about 1300 nm.

Claim 29 (currently amended): The method of claim 19, wherein said at least one parameter of said ~~biological sample~~ intact human tissue is the concentration of an analyte.

Claim 30 (original): The method of claim 29, wherein said analyte is glucose, hemoglobin, or water.

Claim 31 (canceled)

Claim 32 (canceled)

Claim 33 (canceled)

Claim 34 (currently amended): The method of claim 19, wherein said ~~biological sample~~ intact human tissue is intact human skin, esophagus tissue, intestine tissue, or cervical tissue.

Claim 35 (currently amended): The method of claim 19, wherein said at least one parameter of said ~~biological sample~~ intact human tissue is a parameter indicating a disease state.

Claim 36 (original): The method of claim 35, wherein said disease state is diabetic state, vascular disease state, dermatological disease state, or neoplasmic disease state.

Claim 37 (currently amended): An apparatus for measuring at least one optical parameter of ~~a biological sample~~ intact human tissue, wherein said at least one optical parameter is selected from the group consisting of absorption coefficient, scattering coefficient, mean free path, effective attenuation coefficient, and light penetration depth, said apparatus comprising:

(a) a source of light for irradiating a region of said ~~biological sample~~ intact human tissue with light at a light introduction site;

(b) a means for collecting light re-emitted from said region of said ~~biological sample~~ intact human tissue at a light collection site, wherein the distance between the light introduction site and the light collection site is less than three millimeters;

(c) a means for changing the temperature of said ~~biological sample~~ intact human tissue to a temperature ranging from about 0 °C to about 45 °C so that radiation penetrates to a specified depth in said ~~biological sample~~ intact human tissue,

(d) a detector for measuring the intensity of the collected re-emitted light at a plurality of temperatures, wherein the measured intensities correspond to light re-emitted from different depths of said ~~biological sample~~ intact human tissue, wherein said intensity of said collected re-emitted light is used to determine spatially resolved diffuse reflectance of said ~~biological sample~~ intact human tissue; and

(e) a means for calculating at least one parameter of said ~~biological sample~~ intact human tissue from the dependence of at least one optical parameter on depth in said ~~biological sample~~ intact human tissue, wherein said at least one optical parameter is selected from the group consisting of absorption coefficient, scattering coefficient, mean free path, effective attenuation coefficient, and light penetration depth, wherein said ~~biological sample comprises intact human tissue~~.

Claim 38 (currently amended): The apparatus of claim 37, wherein said change in temperature of said ~~biological sample~~ intact human tissue

results in a change in penetration depth of light in said ~~biological sample~~ intact human tissue.

Claim 39 (canceled)

Claim 40 (canceled)

Claim 41 (canceled)

Claim 42 (canceled)

Claim 43 (canceled)

Claim 44 (currently amended): The apparatus of claim 37, wherein said light used to irradiate said ~~sample~~ intact human tissue has at least one wavelength ranging from about 400 nm to about 2500 nm.

Claim 45 (currently amended): The apparatus of claim 37, wherein said light used to irradiate said ~~sample~~ intact human tissue has at least one wavelength ranging from about 600 nm to about 1300 nm.

Claim 46 (currently amended): The apparatus of claim 37, wherein said at least one parameter of said ~~biological sample~~ intact human tissue is the concentration of an analyte.

Claim 47 (original): The method of claim 46, wherein said analyte is selected from the group consisting of glucose, hemoglobin, and water.

Claim 48 (canceled)

Claim 49 (currently amended): The apparatus of claim 37, wherein said ~~biological sample~~ intact human tissue is selected from the group consisting of intact human skin, esophageal tissue, intestine tissue, or cervical tissue.

Claim 50 (currently amended): The apparatus of claim 37, wherein said at least one parameter of said ~~biological sample~~ intact human tissue is an indicator of a disease state.

Claim 51 (previously presented): The apparatus of claim 37, wherein said at least one optical parameter is indicative of a disease state, wherein said disease state is selected from the group consisting of diabetic state, vascular disease state, dermatological disease state, and neoplasmic disease state.

Claim 52 (previously presented): The apparatus of claim 37, wherein said irradiation means and said temperature changing means are included in an endoscope.

Claim 53 (canceled)

Cancel claims 15, 33, and 53.